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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,188	09/30/2003	Hironobu Sai	033022-010	1256
21839	7590	03/02/2005	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			LE, THAO X	
POST OFFICE BOX 1404				
ALEXANDRIA, VA 22313-1404			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 03/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/673,188	Applicant(s) SAI ET AL.	
	Examiner Thao X. Le	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 5-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 1-4 and 10-11 in the reply filed on 13 Jan. 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Number '0' in fig. 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-4 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5621750 to Iwano et al. in view of US 6559070 to Mandal.

Regarding claim 1, Iwano semiconductor light emitting device (LED) in fig. 5A comprising: a mesa section (convex portion) having at least sandwich structure of an n-type clad layer 104, column 14 line 51, an active layer 105, column 14 line 52, and a p-type clad layer 106, column 14 line 56, which are constituted by compound semiconductor layers formed on a substrate 102, column 14 line 45; and an inorganic insulating film formed 108, column 15 lines 5-15, to cover the mesa section excluding a contact region.

But, Iwano does not disclose the LED wherein the inorganic insulating film 108 is constituted by an inorganic insulating film having a vacancy rate of 50% or more.

However, Mandal discloses an inorganic insulating layer (silicon oxide), column 5 line 27, being used in the semiconductor device, column 1 lines 10-20, having a vacancy (porosity) rate of 50% or more, column 5 line 46. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the inorganic layer teaching of Mandal to replace the inorganic layer 106 in Iwano's device, because such insulating material would have low dielectric constant to reduce the capacitance coupling and ion diffusion resistant as taught by Mandal, column 1 line 21-25, column 3 lines 13-15 and column 5 line 47.

The 'vacancy' is being interpreted as a 'porosity' or 'holes' structure.

Regarding claim 2, Iwano does not disclose the semiconductor light emitting device according wherein the inorganic insulating film includes a vacancy having a degree of orientation.

However, Mandal discloses an inorganic insulating layer having a vacancy having a degree of orientation, fig. 13 (the mesoporous oxide is oriented in different directions). . At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the inorganic layer teaching of Mandal to replace the inorganic layer 106 in Iwano's device, because such insulating material would have low dielectric constant to reduce the capacitance

coupling and ion diffusion resistant as taught by Mandal, column 1 line 21-25, column 3 lines 13-15 and column 5 line 47.

Regarding claim 3, Iwano does not disclose the semiconductor light emitting device according to claim 2, wherein the inorganic insulating film includes an inorganic insulating film having at least two kinds of periodic porous structures.

However, Mandal discloses an inorganic insulating film includes an inorganic insulating film, column 5 line 27, having at least two kinds of periodic porous structures, fig. 13 (the structures show that the porosity extending in at least two directions and one is being adjacent to another). . At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the inorganic layer teaching of Mandal to replace the inorganic layer 106 in Iwano's device, because such insulating material would have low dielectric constant to reduce the capacitance coupling and ion diffusion resistant as taught by Mandal, column 1 line 21-25, column 3 lines 13-15 and column 5 line 47.

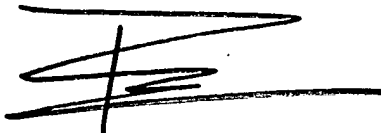
Regarding claims 4 and 10-11, Iwano discloses the semiconductor light emitting device according to any of claims to 3, wherein the mesa section includes a surface emission structure having an electrode 112, column 15 line 18, in a top portion and comprises a semiconductor layer 109, column 14 line 56, provided with an active layer 105 having a quantum well structure, column 14 line 53, constituted by a compound semiconductor, and a pad 112, fig. 1 (electrode 112 comprises a pad as shown in fig. 1), to come in contact with the electrode 112 is provided on the inorganic insulating film 108.

**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of several stylized, overlapping horizontal and vertical strokes.

Thao X. Le  
Patent Examiner  
15 Feb. 2005